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THE STATUS OF *TROPIDOCOLONIA LINEATUM*¹

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The snake known as *Tropidoclonion lineatum* is generally conceded to be a degenerate ally of the genus *Thamnophis*. It is the purpose of the present article to enquire into that alliance, and also to ascertain to which of the four groups of *Thamnophis*, as outlined by Ruthven, *lineatum* is allied.

The generic differences between *lineatum* and the species of *Thamnophis* are said to exist in the following features: the maxillary dentition; the condition of the scales around the nostril; the number of labial plates; and the form of the hemipenis.

The maxillary dentition of *lineatum* consists of 15 teeth, slightly and gradually increasing in size posteriorly. I find 15 teeth in *Thamnophis butleri* and 14 in *T. ordinoides ordinoides*. The last two teeth are significantly, even if only slightly, larger in the two latter. But several species, which are now assigned to *Thamnophis*, were recorded by Cope as having the maxillary teeth equal in size.

The nasal plate of *lineatum* is usually perforated by the nostril, and from that orifice there extends a ventral suture so that the scale is semi-divided. I have examined 54 nostrils of *lineatum*, and find 41 with the condition described; 9 have no suture and hence have an entire nasal; 4 have the nasal completely divided. In only one of these is the condition certainly normal, and thus exactly like that in species of *Thamnophis*, where the nostril is between two scales. But since such variation is found in *lineatum*, the character appears to be of specific, rather than generic, value.

The upper labials of ten *lineatum* from St. Louis are: 5 in six cases, 6 in thirteen cases, and 7 in one case. *Thamnophis ordinoides ordinoides* has been recorded with 5 upper labials, and *Thamnophis radix butleri* with 6.

The lower labials in the same series of *lineatum* were equally 6 or 7. Counts of six lower labials have been recorded for both *butleri* and *ordinoides*.

The hemipenis of *lineatum* is slightly bilobed, and each lobe is tipped with a slim, solid, projection which Cope calls an "awn." In other respects the organ does not differ from that of species of *Thamnophis*. I have examined

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a number of species of *Thamnophis* and have found no "awn," but *T. ordinoides ordinoides* and still more *T. ordinoides vagrans* show slight bilobation of the organ.

Tropidoclonion lineatum has a very short tail, and very few subcaudal plates. I find that seven females from St. Louis have 32-37 subcaudals, and three males from the same locality have 38-45. This count is lower than any recorded for *Thamnophis* but *ordinoides ordinoides* has been found with as few as 50, and *butleri* with as few as 49.

Other characters of *lineatum*, as number of ventrals, number of dorsal scale rows, type of reduction of dorsal scale rows, lack of scale pits, single anal, etc., are identical with those of species of *Thamnophis*.

In type of coloration, *lineatum* agrees with species of *Thamnophis* in having three light stripes, and especially with those that have the lateral light stripe on the second and third row of scales.

Ruthven, in his admirable analysis of *Thamnophis*, has shown that the genus can be divided into four superspecific groups, each of which has its most unmodified member in the Southwest. Each of the four groups consists of a set of vicarious forms, replacing each other in orderly succession, and no two members of the same group occurring together in any one place. Of these four groups, one, the *elegans* group, lacks a representative east of the Great Plains.

Two of the groups show great degeneration in the United States; the *radix* group in its eastern representative *butleri*, and the *elegans* group in its northwestern representative *ordinoides*. I have just shown that the degeneration of *lineatum* is not much greater than that of the two *Thamnophis* just mentioned.

T. radix butleri occurs with *lineatum*; so do *marcianus* and *radix*, both members of the *radix* group. The lateral stripe is on the third and fourth scale rows in the *radix* group and on the second and third in *lineatum*.

The *elegans* group, with the lateral stripe on the second and third rows (as in *lineatum*) adjoins but does not overlap the range of *lineatum*. The Northwestern member, *ordinoides ordinoides*, shows the extreme of scalation reduction hitherto recognized in *Thamnophis*. That extreme would be but slightly increased were *lineatum* recognized as the Eastern member of the *elegans* group. I propose that solution, and suggest that the snake in question be known henceforth as *Thamnophis lineatus*. I believe that its relationships, not only to *Thamnophis*, but to a particular group of *Thamnophis*, are sufficiently demonstrated. The lack of relationship of *lineatum* to the groups of *Thamnophis* typified by *proximus*, by *sirtalis*, and by *radix* can be easily shown. The relationship of *lineatum* to the *Thamnophis elegans* group is indisputable. The debatable point as to whether its specific characters entitle it to separate generic rank I leave for others to settle. Believing, as I do, that the classification should reflect the relationships, I had rather see *Thamnophis* split into four genera, with *lineatum* as a member of one of them, than the present arrangement, with all four groups of *Thamnophis* as one genus, and a single lone member of one of the groups isolated as a monotypic genus.

The range of *lineatum*, from specimens and records that I have seen, is

from Hughes, Butler Co., Ohio, and Sherwood, Franklin Co., Tennessee, to Fort Chadbourne, Coke Co., Texas, and Cherokee Co., Iowa. Within these limits it is known from Ohio, Illinois, Tennessee, Iowa, Missouri, Kansas, Oklahoma, and Texas. I am inclined to regard the record of Stone in the American Naturalist, in 1910, for Round Island, Clinton Co., Pennsylvania, based on a specimen which was already lost, as probably referring to *Thamnophis radix butleri*, or at any rate as awaiting additional confirmation.